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Bacteriostatic Conformal Coating for Electronic Components

A coating has been developed having bacteriostatic qualities capable of hindering bacterial reproduction, both vegetative and sporulative viable microorganisms. Additionally, this coating is compatible with electronic components used in space applications in that it exhibits high electrical resistivity, a low out-gassing rate, and is capable of restraining electronic components when subjected to mechanical vibrations. Used with electronic components and assemblies, it generally involves the application of a thin coating comprised of a polymeric epoxy compound, a monomeric epoxy compound, a polyamide resin, and an organic amine curing agent.

The coating technique is accomplished by first preparing a mixture of the polymeric epoxy resin with the polyamide resin and curing agent, and incorporating the monomeric epoxy such as allyl glycidyl ether in such proportion that the resultant compound may be applied to the electronic components or assemblies by standard brushing, dipping, or spraying techniques. After coating, the items are cured at appropriate temperatures to achieve the desired consistency. More than one coat may be applied with additional curing cycles after each coat, the finished

product to preferably have a coating thickness of from 0.005 to 0.010 inch.

The coating, being bacteriostatic, inhibits the bacterial reproduction of microorganisms such as *Bacillus subtilis*, var. *niger*, *Staphylococcus aureus*, *Pseudomonas alcaligenes*, *Corynebacterium SSP*, and others. It, thus, advances the state of the art in biological decontamination by ensuring that electronic components and assemblies in spacecraft going to other planets will carry only a minimum of Earth-originated viable bacteria.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland 20771
Reference: B67-10599

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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Category 03